

OhioEPA
State of Ohio Environmental Protection Agency

US EPA RECORDS CENTER REGION 5



505762

401 East Fifth Street
Dayton, Ohio 45402-2911

Southwest District
TELE: (937)285-6357 FAX: (937)285-6249
www.epa.state.oh.us

Bob Taft, Governor
Bruce Johnson, Lt. Governor
Joseph P. Koncelik, Director

CERTIFIED MAIL

October 5, 2006

Ms. Karen Cibulskis
U.S. EPA
SR-6J
77 West Jackson Blvd.
Chicago, IL 60604

Re: Preliminary Remedial Action Objectives Technical Memorandum, South Dayton Dump, Moraine Ohio; Ohio EPA Comments

Dear Ms. Cibulskis

The Ohio EPA, Division of Emergency and Remedial Response has completed review of the Preliminary Remedial Action Objectives Technical Memorandum, South Dayton Dump, Moraine, Ohio. Per your request we are submitting the attached comments on sections 1 through 3 of the memorandum for your review. Should you have any questions, please contact me at (937) 285-6040.

Sincerely,

Mark Allen for Matt Justice

Matt Justice
Site Coordinator

cc: Mark Allen, DERR/SWDO

General Comments

1. The Preliminary Remedial Action Objectives (PRAO) Tech Memo is discussed in Section 1.2.2 of the SOW where it states that "Once the existing site information has been analyzed and the Respondents and U.S. EPA have developed an understanding of potential site risks, the Respondents shall review and, if necessary, refine the remedial action objectives that have been identified by U.S. EPA for each actually or potentially contaminated medium. The Respondents shall document the revised preliminary remedial action objectives in a Preliminary Remedial Action Objectives Technical Memorandum, subject to U.S. EPA approval."

The PRAO Tech Memo contains a review of existing information, but proposes no changes to U.S. EPA's site-specific RAOs based on that review. Section 2.1 of the PRAO Tech Memo is titled "USEPA's Preliminary Objectives." Although no modifications of the RAOs are proposed, a table is provided on page 4 which purports to summarize USEPA's RAOs and associates that summary with environmental media. A table grouping U.S. EPA's RAOs by environmental media as provided at the top of page 4 may assist the parties in reaching a common understanding of the scope of work necessary to address the RAOs. However, the table contains not so much a summary of U.S. EPA's site-specific RAOs as it does a wholesale replacement of them with generic RAOs taken from EPA guidance. Given that no refinement of the RAOs is proposed in the PRAO Tech Memo, the table needs to be revised to include all of U.S. EPA's RAOs.

2. It is noted that Section 1.2.3 of the SOW states: "The respondents shall conduct a preliminary identification of potential state and federal ARARs (chemical specific, location specific and action specific) to assist in refining remedial action objectives...". The PRAO Tech Memo does not preliminarily identify ARARs or use them to assist in refining the RAOs. This will need to be addressed in the RI/FS planning documents.
3. Section 4.0, the Phase 1 Remedial Investigation Scope of Work, and Figures 4.1 through 4.3 should be removed from the PRAO Tech Memo. They contain information that is not relevant to the Tech Memo and which should instead be presented in the RI/FS planning documents required under Task 1.3 of the SOW.

Specific Comments

1. Page 1, Introduction, last sentence of 2nd and 3rd paragraphs: There would appear to be redundant and perhaps conflicting statements regarding the PRP Group incorporating USEPA's comments on the PRAO Tech Memo into the RI/FS planning documents. The last sentence of paragraph 2 states: "The PRP Group will incorporate USEPA's comments on the PRAO Tech Memo in the Remedial Investigation/Feasibility Study (RI/FS) planning documents." However, the last sentence of paragraph 3 states: "Comments from USEPA regarding this PRAO Tech Memo will be addressed as appropriate in the draft RI/FS Work Plan." Suggest striking the last sentence of paragraph 3.
2. Page 2, last paragraph, 2nd sentence: The sentence states: "The RI will also include a baseline human health risk assessment and a baseline ecological risk assessment for those portions of the Site that will take into account the agreed upon Presumptive Remedy approach for the central portion of the Site." It is not clear what "those portions of the Site" refer to, or how the agreed upon Presumptive Remedy approach for the central portion of the Site will be taken into account. The current agreed upon Presumptive Remedy approach for the Site only takes into account direct contact with exposed wastes and contaminated soils in the central portion of the Site, presumed to be mitigated by a landfill cover not otherwise defined. All other pathways of exposure related to the central portion of the Site will require assessment, and all pathways, including direct contact, will require assessment outside of the presumptive remedy area. The text should be revised to simply state that the baseline HHRA and ERA will be conducted in accordance with the requirements of the SOW.
3. Page 2, last paragraph, 3rd sentence: The sentence states: "The FS will include a determination and evaluation of alternatives...". The "determination" is suggestive of a remedy decision, which is made by EPA subsequent to the PRPs' submittal of the FS. Suggest revising as follows (delete determination): "The FS will include an evaluation of alternatives...".
4. Pages 3 and 4, Section 2.1: See General Comment 1 above.
5. Pages 4 and 5, Section 2.2: Section 2.2, the "Strategy to Achieve Remedial Action Objectives," is a reiteration of language in the SOW, and seems more appropriately located in the RI/FS Planning Documents.

6. Page 25, Section 3.2.2.6.2, Regional Hydrogeology: The section refers to the Miami Valley buried valley aquifer in terms of an "upper aquifer and lower aquifer." The referenced 1968 U.S. Geological report, Ground-Water Resources of the Dayton Area is cited as describing a clay-rich till separating the "upper aquifer" from the "lower aquifer." This conceptual model is outdated and not appropriate for a localized site scale. More recent work indicates the Miami Valley buried valley aquifer is a single aquifer, which in some cases is separated into upper and lower zones by an intermediate till rich facies (aquitard). Please refer to Aquitard Distribution in a Northern Reach of the Miami Valley Aquifer, Ohio, USA: Part 2 Interpretation of Facies and Geostatistical Results; D. Dominic, R. Ritzi, K. Kautsch; Hydrogeology Journal, v. 4, no. 2, 1996. According to Dominic et. al., "previous conceptual models of upper and lower aquifers separated by an aquitard are inappropriate." Dominic et. al. provide evidence that the till-rich facies is extremely heterogeneous with interbeds of sand and gravel. Please remove all references describing two separate aquifers.
7. Page 33, Section 3.2.3.7, Summary of Results of PFI Investigation: The hydrogeology section states that "surface water bodies recharge the upper aquifer." However no mention is made of ground water recharging the river. Sections of the Great Miami River fluctuate seasonally between gaining and losing conditions. Therefore, please revise the statement to acknowledge the potential for ground water discharge to the river (see U.S. EPA comment 71 concerning the scoping report (email August 7, 2005)). A site conceptual hydrogeological flow model will need to be developed during the RI which characterizes the river's seasonal influence on ground water flow.
- 8.a Page 33 and 34: The fourth paragraph describes a ground water "stagnation zone" between the quarry pond and the Great Miami River. In addition, a northerly flow interpretation toward monitoring well MW-101A is presented. Both interpretations appear largely attributable to head measurements from a single piezometer, P-211. The reported interpretations conflict with previous flow maps dated June 8, July 6, and August 4, 1998; January 1, 1999; April 11, 2000; and October 25, 2001. Flow maps with these dates do not depict a "stagnation zone" or localized northerly flow toward MW-101A. Please address this discrepancy during RI/FS planning.
- 8.b. Some flow maps interpret an elevated hydraulic mound focused at piezometer P-211. These flow maps depict northerly flow toward MW-101A. This northerly interpretation counters the expected regional scale ground water flow associated with the Great Miami River. In order to assist in RI/FS planning, future flow maps should be identified as being representative of local, intermediate, or deep flow systems.

- 8.c Future flow map construction should also consider the effects from surface topography on localized flow systems. Topographic effects in the vicinity of P-211 are uncertain. For example piezometer P-211 is interpreted as being located in a localized recharge area. However recharge areas are typically associated with topographic highs. Piezometer P-211 is located in topographic low. Has consideration been given to the possibility that P-211 is in need of re-surveying?
- 8.d Consideration will also need to be given to the fact that vertical flow components may be significant in some areas. The interpreted recharge area at P-211 would suggest the presence of downward gradients. Yet no nested piezometers are available to assess vertical gradients. Therefore the water table can not be distinguished from the potentiometric surface. In order to produce accurate flow maps, localized flow systems must be distinguished from intermediate and regional flow systems. Caution should be taken to not mix head measurements reflective of the water table, with head measurements reflective of a potentiometric surface. In order to make the distinction, the monitoring network will need to be enhanced with nested piezometers at key locations across the site, such as near P-211. To achieve this objective, vertical gradients should be quantified in an effort to produce flow nets depicting local, intermediate, and regional flow systems.
- 8.e The alternative possibility that head measurements from P-211 are representative of a perched zone within fill should be addressed in RI/FS planning phases. Perched head measurement would not be appropriate for ground water flow interpretation.
9. To assist in the effort to form a conceptual model for ground water flow, the following observations regarding the document Environmental Data Summaries, South Dayton Landfill (Grillot Landfill), July 26, 2002 should be addressed during the RI:
- a. Previous flow interpretations present substantial inconsistencies as noted for each season summarized below.

Spring Interpretations

The spring flow map titled April 11, 2000 depicts easterly to southeasterly flow. However all other spring interpretations depict localized northerly flow near P-211 and the large pond.

Summer Interpretations

The most recent flow maps interpret localized northerly flow near the large pond; yet flow maps titled June 8, July 6, and August 4, 1998 indicate southerly flow toward the large pond. Such a reversal in flow within a single season is not to be expected.

Fall Interpretations

The most recent flow map titled October 25, 2001 depicts easterly to southerly flow across the site. However all other flow maps depict localized northerly flow near the large pond.

Winter Interpretations

The flow map dated March 1, 1999 depicts southeasterly flow across the site, with an anomalous ground water high focused on P-211. However the January 1, 1999 flow map depicts southerly flow across the site. Still other flow maps depict localized northerly flow near the large pond. Such substantial variations in ground water flow within a single season are not to be expected.

b. Another reason for the need for re-evaluation is that contouring protocol has not been followed consistently. For example, adjacent equipotential lines are often skewed relative to one another, rather than parallel. In addition, the past flow interpretations do not appear to follow a seasonally consistent conceptual model. With the exception of flow maps dated summer of 1998, January 1, 1999, and October 25, 2001, the influence of the Great Miami River does not appear to have been considered in previous flow interpretations. Basing future flow interpretations on an improved knowledge of subsurface heterogeneity, and local boundary conditions will be necessary.

10. Page 34, second paragraph: This discussion proposes detection of "1,2-DCE" as evidence for the biodegradation of trichloroethene. Trichloroethene may potentially biodegrade into three isomers: 1,1-dichloroethene, cis-1,2-dichloroethene, and trans-1,2-dichloroethene. Please clarify whether the 1,2-DCE nomenclature is being used in place of cis-1,2 dichloroethene? If so, please revise the nomenclature in accordance with U.S. EPA nomenclature used in the document Drinking Water Standards and Health Advisories.
11. Pages 34 and 35, discussion of natural attenuation: This discussion hypothesizes that biodegradation of 1,1,1-trichloroethane and trichloroethene are occurring based on the detection of potential "breakdown" or "daughter products" such as "1,2-DCE" or vinyl chloride. However, without more supporting data, the presence of these

compounds could be attributable to co-solvent deposition rather than biodegradation. Please remove all statements in the memorandum describing the occurrence of biodegradation, until supporting evidence can be provided.

Some degree of biodegradation is to be expected. However the more important issue which will need to be addressed during the RI is the efficiency of biodegradation as a natural attenuation process.

12. Page 39, Section 3.3.2, Vertical Extent of Backfilling: This section states that the vertical extent of waste can be estimated through a combination of sources including: boring logs and historical aerial photographs. Consideration should be given to providing an isopach map of waste thickness in the RI/FS planning documents.
13. Page 40, Section 3.3.3, first paragraph: Please delete all of this paragraph other than the first sentence. The focus on gross waste classification as a key factor in identifying data gaps and implementing the presumptive remedy is misplaced. The appropriate limits for surface cover and the nature of the cover will depend the nature of the threat, if any, presented by the waste irrespective of gross classification (*i.e.*, the results of sampling and other RI/FS tasks such as risk assessment and the need to address final RAOs) and not on gross waste classification based on historic records or visual observation.
14. Page 42, last paragraph of Section 3.4: Please modify the second sentence to read "It is also apparent...". Delete the last sentence of the paragraph.
15. Page 42, Section 3.5, Landfill Gas Potential: This section should be revised to discuss both the need to assess potential risk associated with methane and potential risk associated with volatile chemicals in soil or waste vapors (soil vapor intrusion). Additionally, the discussion should note the potential for the generation of methane from the decomposition of industrial wastes (such as palettes or paper) and vegetation (such as brush and yard waste).
16. Pages 44-53, Chapter 4, Phase I Remedial Investigation Scope: This chapter should be deleted from the PRAO Tech Memo. However, to assist in revision of this section in a manner consistent with the consent decree and guidance referenced therein, the following revision of the table on page 44 is provided.

**Preliminary Remedial Action Objectives Technical Memorandum,
South Dayton Dump, Moraine Ohio; Ohio EPA Comments
October 5, 2006**

Page 7 of 7

<i>Environmental Media</i>	<i>Remedial Action Objectives (RAOs)</i>	<i>Will DC-PRA Address RAOs?</i>
Soils/Landfill Contents	1. <u>Contain</u> and prevent dermal contact and ingestion 2. <u>Minimize infiltration and contaminant leaching</u> 3. <u>Control surface water runoff and erosion</u> 4. <u>Treat or eliminate hot spots</u>	5. DC-PRA only 6. No 7. DC-PRA only 8. No
Air/Dust (<u>from all media</u>)	9. Prevent inhalation	10. DC-PRA only; particulate only
Landfill/ <u>Soil</u> Gas	11. <u>Control</u> 12. Prevent inhalation and explosion	13. No 14. No
Surface Water	15. Prevent ingestion, dermal adsorption and bio-concentration	16. DC-PRA only
Sediment	17. Prevent ingestion, dermal adsorption and bio-concentration	18. DC-PRA only
Groundwater	19. Prevent ingestion and dermal adsorption 20. Prevent migration to surface water <u>and sediment</u> 21. <u>Prevent further migration from source area</u> 22. <u>Prevent or minimize further migration of downgradient contaminant plume and actual or potential risks to receptors</u> 23. <u>Return to beneficial use within reasonable time frame</u>	24. No 25. No 26. No 27. No 28. No
Leachate	29. Prevent ingestion and dermal adsorption 30. Prevent migration to surface water <u>and sediment</u> 31. <u>Prevent migration from source area</u>	32. No 33. No 34. No
Wetlands	35. Remediate wetlands	36. No